

TEMPERATURE OF THE AIR.

In General.—The general distribution of the temperature for the month is shown by the isotherms on chart No. II, from which it appears that the temperatures have been above the average in the Ohio valley, Lake region, Middle and Eastern States and the St. Lawrence valley, but have been slightly below the average in the South Atlantic and Gulf States, and decidedly below west of the Upper Mississippi valley.

Maximum Temperatures.—The maximum temperatures above 80° have been as follows: Cape Henry, 81°; Galveston, 82°; Indianola, 81°; Jacksonville, 82°; Vicksburg, 80°; Wilmington, 81°; Boerne, Tex., 81°.

Minimum temperatures below zero are reported as follows: Bismarck, -15°; Breckenridge, -23°; Cheyenne, 0°; Duluth, -7°; Mt. Washington, -10°; North Platte, -3°; Pembina, -34°; Pike's Peak, -17°; Yankton, -7°.

Ranges of Temperature.—The largest temperature ranges have been: Albany, 61°; Boston, 69°; Bismarck, 82°; Breckenridge, 83°; Cheyenne, 69°; Denver, 73°; Dodge City, 69°; Duluth, 62°; Keokuk, 60°; Leavenworth, 62°; North Platte, 82°; Omaha, 67°; Pembina, 98°; St. Louis, 62°; Yankton, 83°. The least ranges have been: Cape May, Grand Haven, New London, New Orleans and Milwaukee, 40°; Escanaba, 37°; Cape Hatteras, Cape Lookout, Newport, Salt Lake City and Thatcher's Island, 39°; San Diego, 36°; and San Francisco, 20°.

Frosts.—The principal frosts reported during the month have been as follows; generally only the first frost or heavy frosts are here enumerated: 2d, Cal.; 7th, Miss.; 8th, Ala. and Ga.; 9th, Ala., Ga. and Fla.; 10th, Ala. and Fla.; 11th, Ala. and Fla.; 12th, Fla., Cal. and Iowa; 19th, Texas; 20th, Ala. and Fla.; 21st, Ala., Fla., La. and Miss.; 22nd, Fla.; 24th, Tenn.; 26th, Ala., Fla., Ga. and N. C.; 27th, Fla. and N. C.; 28th, Texas; 30th, Iowa.

PRECIPITATION.

The general distribution during November of the total amount of rain or melted snow is shown upon chart No. III, from which it appears that the heaviest rains are reported from Oregon and points near the coast, in southeastern New England and the Middle Atlantic States. As compared with November, 1875, the rain-fall in Oregon has decidedly diminished, being but 10 inches this year at Portland, as compared with 15.75 in. last year. At San Francisco, the rain-fall of this year is 0.25 in., as compared with 0.27 in. for Nov., 1875. The very large excess that fell in Nov., 1875, in the Gulf States and the Ohio valley, is this year followed by a decided deficiency. The deficiency then reported in the Upper Lakes, Upper Mississippi and Lower Missouri valleys, is now followed by a slight excess. Areas of little or no rain are reported in the South Atlantic States, and in portions of Mississippi, Missouri, Arkansas and Tennessee.

Light Rains.—Stations reporting rain-falls of 0.25 in. or less are as follows: A. Ty., Stanwix, 0.03; Camp Verde, 0.15; Cal., Point San Jose, 0.19; Salinas City, 0.05; San Jose, 0.09; El Cajon, 0.14; San Diego, 0.04; San Francisco, 0.27; Cal., Fort Garland, 0.24; Minn., Breckenridge, 0.02; M. T., Virginia City, 0.20; Neb., Fort Hartsoff, 0.04; Nev., Carson City, 0.02; Wyo., Fort Bridger, 0.18.

Heavy Rains.—Stations reporting heavy rains are as follows: Mich., Boston, 2.44 in. 7th, 6.16 in. 20th and 21st, and 11.73 in. total for month; Wood's Hole, 2.5 in. 7th, 2.73 in. 20th and 21st, and 11.70 in. total for month; Fall River, 5.5 in. 7th to 12th, and 5.3 in. 20th to 22nd; Penn., Philadelphia, 4.72 in. 19th and 20th; Del., Dover, 7.58 in. 18th to 20th.

The first snows of the month: 1st, Iowa, Neb.; 6th, Ill., Iowa; 7th, Ind., Iowa; 8th, Ohio, E. Tenn. and E. Mich.; 10th, W. Penn. and N. Y.; 13th, Kan., Mo.; 14th, Kan.; 17th, N. Y.; 19th, Ky., Tenn.; 20th, Vt., Salt Lake City; 23rd, Ohio; 24th, Middle States; 25th, Middle States, Me.; 26th, Middle States, Me.; 27th, southern New England; 30th, Va.

Total Snow-fall.—The total snow-fall during the month has, in the respective States, ranged as follows, being given in inches as it fell: Dak., 2 inches; Minn., 10; Neb., 4 to 10; Kan., 2 to 6; Ark., 1 to 3; Mo., 3 to 11; Wis., 2 to 6; Ill., 3 to 8; Mich., 6 to 9; Ind., 1 to 12; Ohio, 2 to 9; Ken., 1 and 2; Tenn., 8 to 10; N. C., 4; Va., 2 to 7; Md., 1 to 2; Del., 1; N. J., 1 to 7; Penn., 2 to 5; N. Y., 1 to 11; Conn., 2; Mass., 1 to 5; Vt., 4 to 5; N. H., 3. A few stations report *snow lying on ground at end of month* as follows: Neb., 2 inches; Minn., 2; Wis., 2 to 4; Mo., 1 to 3; Ark., 1; Mich., 1 to 2; Ind., 2 to 5; Ken., 1; Ohio, 1 to 3; Penn., 1; N. Y., 7.

Rainy Days.—The number of days on which a greater or less quantity of rain or snow fell during the month ranges from 9 to 16 at stations in New England; Middle Atlantic States, 8 to 17; South Atlantic States, 3 to 19; Gulf States, 6 to 13; Ohio valley and Tennessee, 9 to 21; Lower Lake region, 18 to 25; Upper Lake region, 10 to 22; Northwest, 7 to 16; Rocky Mountain stations, 6 to 14; California, 2.

Cloudy Days.—The number of days during the month on which the cloudiness has equalled eight on a scale of ten, as reported by voluntary observers, ranges as follows: New England, 7 to 20; Middle States,

6 to 24; South Atlantic States, 5 to 15; Gulf States, 6 to 16; Ohio-valley and Tennessee, 8 to 25; Upper Lake region, 10 to 24; Northwest, 5 to 21.

Droughts.—At the close of the month, at South Hartford, N. Y., wells and fountains low. At Woodstock, Vt., drought very severe. At West Charlotte, Vt., many wells and springs dry; water in Lake Champlain very low. At Westminster, Vt., continues very dry.

RELATIVE HUMIDITY.

The mean relative humidity for the month, as reported from the Signal Service stations, ranges in New England from 72 to 79 per cent.; Middle Atlantic States, 68 to 82; South Atlantic States, 64 to 78; Gulf States, 64 to 76; Indian Territory, Arkansas and Tennessee, 58 to 71; Lower Lake region, 73 to 79; Upper Lake region, 72 to 85; Ohio and upper Mississippi valleys, 65 to 76; Missouri valley, 61 to 77; Minnesota, 72 to 82; Cheyenne, 49; Denver, 46; Santa Fe, 56; Salt Lake City, 54; Virginia City, 60; San Diego, 61; San Francisco, 69; Pike's Peak, 74; Mt. Washington, 84.

WINDS.

The prevailing winds for the month are shown by the arrows on chart No. II. They have very generally been from the NW., except in Florida. The prevailing winds that were from exceptional directions were, S., at Chicago, Denver, Erie, Knoxville, La Crosse and St. Marks; SE., at Grand Haven and Oswego; SW. at Toledo, Cleveland, Morgantown and Jacksonville. The prevailing winds were NW. on Mt. Washington, and W. on Pike's Peak.

Total movements of the air.—The following are the largest total movements of the air during the month as recorded at the Signal Service stations: Pike's Peak, 16,443; Sandy Hook, 12,242; Cape May, 11,887; Cape Lookout, 11,308; Kittyhawk, 11,183; Barnegat, 10,655; Thatcher's Island, 10,552; Indianola, 10,199. Smallest movements: Lynchburg, 2,069 miles; San Diego, 2,229; Augusta, 2,584; Salt Lake City, 2,887; Barnegat, 2,991.

Highest Winds.—Among the highest wind-velocities reported from the Signal Service stations during the month, are the following: Mt. Washington, 28th, NW. 108 miles per hour; Pike's Peak, 30th, 83; Sandy Hook and Barnegat, 20th, NE. 68; Kittyhawk, 4th, NE. 55; New York and Boston, 20th, NE. 50; Malone, 50.

VERIFICATIONS.

Probabilities.—The detailed comparison of the tri-daily weather Probabilities, with the telegraphic reports for the succeeding twenty-four hours, shows a percentage of verifications of 83.9, and a percentage of omissions of 0.6. In detail the verifications have been as follows: for weather, 88.4; wind, 85.7; temperature, 82.6; barometer, 78.9. The geographical distribution of the verifications have been—New England, 82.5; Middle States, 82.0; South Atlantic States, 83.7; East Gulf States, 82.2; West Gulf States, 83.4; Lower Lakes, 82.9; Upper Lakes, 86.6; Tennessee and Ohio valley, 84.4; Upper Mississippi valley, 86.7; Lower Missouri valley, 84.3.

Cautionary Signals.—There have been displayed 211 cautionary storm-signals at United States stations: of these 155 were verified at the stations and 49 others, or 73 per cent. in all, verified within one hundred miles of the station; 50 were not justified and 6 were displayed too late; 38 cases are reported in which signals were needed, but not displayed, in 7 of which cases orders had been issued, but failed to be received, owing to derangement of telegraph lines.

NAVIGATION.

The highest and lowest readings on the Signal Service river-gauges are given in table on Chart No. III, from which it appears that the Missouri was highest during the first three days of the month and lowest during the last three. The Mississippi was generally lowest on the 1st and 30th, and highest from the 10th to 20th. The Ohio and tributaries were swelled for a short time by a flood, which reached its height between the 2nd and 28th. At Shelburn, N. H., on the 1st, Androscoggin river was lower than ever before known. Wappinger's Falls, N. Y., during the first of month water in lake so low that factories could not run.

Ice in Rivers is reported as follows: On the 6th, at Breckenridge, Red River of the North full of floating ice and closed on the 7th. 30th, at Buffalo, ice two inch thick. 28th, 29th and 30th, at Davenport and Keokuk, floating ice. At La Crosse, 24th to 29th, floating ice, when all boats were withdrawn; frozen over 30th. Omaha, 14th, floating; 18th, river gorged; 24th, river closed. Pembina, 9th, navigation closed on the Red River of the North; 14th, ice thick enough to sustain teams—Moorhead, Minn., Red River of the North, crossed by teams 4 h. St. Paul, 14th to 23rd, floating ice; 19th, navigation closed; 30th, river frozen over. Yankton, 14th, river closed by ice. Fort Sully, 8th to 21st, floating ice; 22nd, river closed. Firesteel, Dak., 13th, James River frozen. Hennipin, Ill., 28th, Illinois River closed. Rockford, Ill., 29th, Rock River closed. Muscatin, Iowa, 22nd to 30th, floating ice; 30th, ferry-boat ceased running.